

BOSHKATOV, Ya.I., red.; BOYAR, O.G., red.; VLASOV, L.F., red.; LIFSHITS, M.O., red.; MASHKILLEYSON, L.N., red.; MILOVIDOV, B.M. [deceased], red.; MOLCHANOVA, O.P., red.; POL'SHANSKIY, V.S., red.; POPKOV, V.I., red.; REVIN, A.I., otv. red.; TIMOFEYKVA, Z.N., red.; LAZAREV, S.M., tekhn. red.; LEBEDEVA, L.A., tekhn. red.

[Concise encyclopedia of home economics] Kratkaia entsiklopediia domashnego khoziaistva. Izd. 2. Moskva, Gos. nauchn. izd-vo "Sovetskaiia entsiklopediia." Vol. 1. A-M. 1962. 895 p. Vol. 2. N-IA. 1962. 903-1758 p. (MIRA 15:6)

(Home economics--Dictionaries)

OL'SHANOVA, Kaleriya Maksimovna; KOPYLOVA, Valentina Dmitriyevna;
MOROZOVA, Nadezhda Mikhaylovna; CHMUTOV, K.V., otv. red.;
VLASOV, L.G., red.; MAKOGONOVA, I.A., tekhn. red.

[Precipitation chromatography] Osadochnaya khromatografiya.
Moskva, Izd-vo Akad.nauk SSSR, 1963. 103 p. (MIRA 16:2)

1. Chlen-korrespondent Akademii nauk SSSR (for Chmutov).
(Chromatographic analysis)

VLASOV, L. G.

Vlasov, L. G. - The Method of Determining Rubidium in Minerals and Rocks.

The Sixth Session of the Committee for Determining the Absolute Age of
Geologic Formations at the Department of Geologic-Geographical Sciences
(OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

Izv. Ak. Nauk SSSR, Ser. Geol., No. 1, 1958, p. 119-127 author: Iskhanskaya, I. E.

LAPITSKIY, A.V.; STRIZHKOV, B.V.; VLASOV, L.G.

Some thermodynamic constants of alkali metal metaniobates and metantalates. Vest. Mosk un. Ser. 2:Khim. 15 no.4:25-27 J1-Ag '60.

(MIRA 13:9)

РАДИОХИМИЯ

1. Kafedra radiokhimii Moskovskogo universiteta.

(Alkali metal niobates)

(Alkali metal tantalates)

83975

S/080/60/033/009/007/021
A003/A001

54700

AUTHORS: Strizhkov, B.V., Lapitskiy, A.V., Vlasov, L.J.TITLE: The Physical-Chemical Study of the Decomposition of the Barium
Titanyl Oxalate Binary Salt

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 9, pp. 2009-2014

TEXT: $\text{BaTiO}(\text{C}_2\text{O}_4) \cdot 4\text{H}_2\text{O}$ and the products of its thermal decomposition were investigated. It was subjected to complex thermographic and thermogravitation analysis within the temperature range from 20 to 1,400°C. The investigation was carried out in the Gosudarstvennyy issledovatel'skiy elektrokeramicheskii institut (State Electroceramic Research Institute) on a Voronkov's apparatus (Ref. 4). The weight of the batch was 0.15 g. The temperature was raised at the rate of 8 degrees/min. The first endothermic process was observed at 175°C and was accompanied by a weight loss of 16.7% corresponding to a loss of 4 molecules of crystallization water. The second process took place at 345°C. It was accompanied by a weight loss of 20% due to the decomposition of the oxalate ion and liberation of two molecules of carbon dioxide. The third effect, at 670°C, was due to the liberation of another two molecules of carbon dioxide resulting

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S/080/60/033/009/007/021
A003/A001

The Physical-Chemical Study of the Decomposition of the Barium Titanyl Oxalate
Binary Salt

in a weight loss of 13%. The fourth effect, at 710°C, is not connected with a weight loss and is due either to the formation of a new substance or to a polymorphous transformation. Roentgenograms of the substances were made at room temperature by Debye's method with a PKД-57 (RKD-57) camera. The following series of transformation was found: $\text{BaTiO}(\text{C}_2\text{O}_4)_2 \cdot 4\text{H}_2\text{O} \rightarrow \text{BaTiO}(\text{C}_2\text{O}_4)_2 \rightarrow \text{BaTiO}_3$ (CO₂)₂ → BaTiO₃. The final product is barium titanate with a tetragonal structure at room temperature, i.e., with ferroelectric properties (Ref. 1). There are 3 figures, 1 table and 8 references; 5 Soviet, 3 English.

SUBMITTED: February 25, 1960

Card 2/2

5.3700

-2209,1236,1273

86378

S/020/60/133/006/029/031XX
B016/B054

AUTHORS: Strizhkov, B. V., Lapitskiy, A. V., Vlasov, L. G., and
Tsvetkov, A. I.

TITLE: Production of Titanyl Oxalates of Bivalent Metals, and a
Physico-chemical Study of Their Thermal Decomposition

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 6,
pp. 1347-1349

TEXT: The authors report on the synthesis of the salts of titanyl oxalic
acid $H_2(TiO(C_2O_4)_2) \cdot 2H_2O$ with bivalent cations, and on the physico-
chemical study of the decomposition of these salts on heating. For this
purpose, the authors developed special methods, and produced, with their
aid, barium-, strontium-, lead-, and calcium-titanyl oxalates. For the
first three salts, they used the following procedure: Concentrated
solution of oxalic acid was added, under continuous stirring, to the
aqueous solution of $TiCl_4$ (concentration 0.2-0.3 g/ml) which had been
prepared by the method described in Ref. 3. Aqueous solutions of barium
Card 1/3

Production of Titanyl Oxalates of Bivalent
Metals, and a Physico-chemical Study of Their
Thermal Decomposition

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S/020/60/133/006/029/031XX
B016/B054

chloride, strontium chloride, or lead nitrate were added to the resulting solution of titanyl oxalate at room temperature. The resulting complex salts yielded a white precipitate. Calcium-titanyl oxalate could only be obtained in acetic solution. An analysis of the compounds produced showed the following compositions: $\text{BaTiO}(\text{C}_2\text{O}_4)_2 \cdot 4\text{H}_2\text{O}$; $\text{SrTiO}(\text{C}_2\text{O}_4)_2 \cdot 5.5\text{H}_2\text{O}$; $\text{PbTiO}(\text{C}_2\text{O}_4)_3 \cdot 4\text{H}_2\text{O}$, and $\text{CaTiO}(\text{C}_2\text{O}_4)_2 \cdot 5\text{H}_2\text{O}$. By an X-ray phase analysis and a crystal-optical investigation, the authors proved that the complex salts obtained consist of small isotropic crystals. A comprehensive thermographic and thermogravimetric investigation showed that the thermal decomposition of the said four titanyl oxalates proceeds by steps, and is accompanied by several endo- and exothermic processes (Fig. 1). From the character of decomposition, the authors conclude that the oxalate groups are mainly bound to the titanyl ion; the cation has no noticeable effect on the strength of this bond. The process of thermal decomposition is concluded at about 800°C . The end products are meta-titanates of the corresponding metals. Table 1 gives the specific gravities of the salts used and of the products of thermal decomposition. As was expected, the

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Production of Titanyl Oxalates of Bivalent S/020/60/133/006/029/031XX
Metals, and a Physico-chemical Study of Their B016/B054
Thermal Decomposition

specific gravity increases with rising roasting temperature up to a maximum which corresponds to the specific gravities of barium-, strontium-, calcium-, and lead titanate, respectively. There are 1 figure, 1 table, and 3 non-Soviet references. ✓

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: April 7, 1960, by I. I. Chernyayev, Academician

SUBMITTED: April 4, 1960

Card 3/3

STRIZHKOV, B.V.; LAFITSKIY, A.V.; VLASOV, L.G.

Preparation of calcium titanyl oxalate. Zhur. neorg. khim. 6 no.1:
238-239 '61. (MIRA 14:2)

(Calcium titanyl oxalate)

VLASOV, L.G.; LAPITSKIY, A.V.; STRIZHKOV, B.V.

Thermographic and thermogravimetric study of oxalatonibates.
Vest. Mosk. un. Ser. 2: Khim. 16 no.1:57-58 Ja-F '61.

(MIRA 14:4)

1. Kafedra radiokhimii Moskovskogo universiteta.
(Oxalatonibates)

VLASOV, L.G.; IAPITSKIY, A.V.

Complex compounds of niobium with oxalic acid. Vest. Mosk. Un. Ser. 2:
(MIRA 1411)
khim. 16 no. 6: 38-40 N-D '61.

1. Moskovskiy gosudarstvennyy universitet. Kafedra radiokhimii.
(Niobium compounds) (Oxalic acid)

STRIZHKOV, B.V.; LAPITSKIY, A.V.; VLASOV, L.G.

Preparation and thermographic study of barium, lead and strontium
titanyl oxalates. Zhur.prikl.khim. 34 no.3:673-674 Nr. '61.
(MIRA 14:5)

(Barium titanyl oxalate) (Lead titanyl oxalate)
(Strontium titanyl oxalate)

S/020/61/141/001/012/021
B103/B147

AUTHORS: Lapitskiy, A. V., Vlasov, L. G., Artamonova, Ye. P., and
Zyulkovskiy, Yu.

TITLE: Study of interaction of aqueous potassium metaniobate with
oxalic acid

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 1, 1961, 101 - 103

TEXT: The authors studied, by means of physicochemical analysis, the
system $\text{KNbO}_3 - \text{H}_2\text{C}_2\text{O}_4 - \text{H}_2\text{O}$ both in isomolar series and in series with
constant KNbO_3 concentration. They measured: electrical conductivity,
optical density, transparency, lowering of the freezing point, viscosity,
pH, and diffusion coefficient. When measuring the latter, they used
 Nb^{95} as a label. The composition - property curves usually show two
extrema: (a) at a molar ratio $\text{KNbO}_3 : \text{H}_2\text{C}_2\text{O}_4 = 1 : 0.5$, and (b) at a ratio
of 1:1. At the ratio of 1:1, the interaction may take place:
 $\text{KNbO}_3 + \text{H}_2\text{C}_2\text{O}_4 = \text{KHC}_2\text{O}_4 + \text{HNbO}_3$ (1); $\text{KNbO}_3 + \text{H}_2\text{C}_2\text{O}_4 = \text{K}[\text{NbO}_2\text{C}_2\text{O}_4] + \text{H}_2\text{O}$ (2);
Card 1/3

S/O20/61/141/001/C:2/02
B103/B147

Study of interaction of aqueous...

$2\text{KNbO}_3 + 2\text{H}_2\text{C}_2\text{O}_4 = (\text{NbO}_2)_2\text{C}_2\text{O}_4 + \text{K}_2\text{C}_2\text{O}_4 + 2\text{H}_2\text{O}$ (3). On the basis of experimental data, only (2) is applicable to the interaction of the two components. The first stage of interaction proceeds as follows:
 $2\text{KNbO}_3 + \text{H}_2\text{C}_2\text{O}_4 = \text{K}_2\text{C}_2\text{O}_4 + 2\text{HfNbO}_3$. The largest precipitate is formed at a ratio of 1 : 0.5, which is confirmed by data of pH measurements. At 1:1, the solution remained as clear as water. Reaction according to Eq. (3) could not be verified experimentally (pH measurements). By means of electrophoresis it was found that the entire Nb passed to the anode according to Eq. (1). Thus, Nb is in the negatively charged particles whereas, according to Eq. (3), it constitutes a component of the positively charged particles. Since no interaction was found at 1:1, but only at about 1:2, results were checked by computation. The coefficient of self-diffusion of KNbO_3 was additionally measured at 25°C; it was $1.478 \cdot 10^{-5} \text{ cm}^2/\text{sec}$ (concentration about 0.03 moles/liter). The molecular weight approximately calculated for the resulting complex ion was 199.7 which is close to 213 (the value theoretically calculated for the $[\text{NbO}_2\text{C}_2\text{O}_4]^-$ ion). Thus, the composition of the resulting compound was confirmed by the coefficient of self-diffusion. Its composition remains unchanged up to the ratio of

Card 2/3

S/020/61/141/001/012/021
B103/B147

Study of interaction of aqueous...

1:10. At a $\text{pH} < 2$, the complex is in solution in a strongly hydrolyzed state since the coefficient of self-diffusion is strongly reduced. At a pH of 1.8, it remained constant for various ratios between 1:1 and 1:10. Thus, only one compound, $\text{K}[\text{NbO}_2\text{C}_2\text{O}_4]$, is formed. The instability constant of the complex ion was found to be $8 \cdot 10^{-4}$. A compound with a ratio $\text{Nb} : \text{H}_2\text{C}_2\text{O}_4 = 1:3$ could not be found by the authors (contrary to F. Russ, Zs. anorg. Chem., 31, 42 (1902)). There are 3 figures and 4 references: 1 Soviet and 3 non-Soviet. The reference to the English-language publication reads as follows: C. G. Fink, L. G. Jenness, Am. Inst. of Min. and Met. Eng., Technical Publ., 1931, p. 147.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: April 22, 1961, by I. I. Chernyayev, Academician

SUBMITTED: April 14, 1961

Card 3/3

BERDONOV, S.S.; LAPITSKIY, A.V.; VLASOV, L.G.

Aqueous solution of niobium tetrabromide. Vest. Mosk. un. Ser.
2 Khim. 19 no.2:26-29 Mr-Apr'64 (MIRA 17:6)

1. Kafedra radiokhimii Moskovskogo universiteta.

LAPITSKIY, A.V.; VLASOV, L.G.; TSALETKA, R.

Problem of the modern interpretation of D.I. Mendeleev's periodic system. Vest. Mosk. un. Ser. 2 Khim. 19 no. 2: 74-78 Mr-Apr '64

1. Kafedra radiokhimii Moskovskogo universiteta.

POLEVODOV, A.P.; DANILIN, V.I.; KRASIL'NIKOV, B.G.; VLASOV, L.G.

Press for determining the volume electric resistance of powders
at various pressures. Zav. lab. 31 no.11:1417-1418 '65.
(MIRA 19:1)

BEERUKOV, V.I.; SANATINA, V.N.; LAPITSKIY, A.V.; VLASOV, I.G.; KRYLOV, Ye.I.

Magnetic properties of potassium salts of niobium heteropolyacids.
Zhur. neorg. khim. 10 no.1:272-275 Ja '65. (MIRA 18:11)

1. Submitted Sept. 16, 1963.

L.PITSKIY, A.V. [deceased]; SHAO PIN'-SI [Shao P'in-hsi]; VLASOV, L.G.

State of niubium in diluted organic acid solutions. Radiokhimiia
7 no.2:241-243 '65. (MIRA 12:6)

TARITSKIY, A.V. [det. anal.]; SPIN-AT [Shas. 100-001]; VLEKOV, I.G.

Reaction of potassium hexatungstate with solutions of some organic acids. Vestn. Khim. in. Ser. Khim. 20 no. 3:47-50 Ky-64 '65. (MIRA 28:8)

1. Kafedra radiofiziki Moskovskogo universiteta.

LAPITSKIY, A.V.; BEZRUKOV, V.I.; VLASOV, L.G.

Soluble niobates of some transition metals. Izv.vys.ucheb.zav.;
khim. i khim.tekh. 7 no.2:175-179 '64.

(MIRA 18:4)

1. Kafedra radiokhimii Moskovskogo gosudarstvennogo universiteta.

L 9972-65 ENT(m)/EPF(n)-2/ERP(b) Pu-4 ASD(m)-3/ASD(f)-2 JD/JG/MLK
8/0000/63/000/000/0219/0225

ACCESSION NR: AT4046217

AUTHOR: Vlasov, L. G. (Moscow, Novosibirsk); Lapitakiy, A. V. (Moscow, Novosibirsk); Traletka, R. (Moscow, Novosibirsk)

TITLE: Investigation of the columbate-oxalic acid-water and tantalate-oxalic acid-water systems

SOURCE: Yubileynaya konferentsiya po fiziko-khimicheskomu analizu. Novosibirsk, 1960. Fiziko-khimicheskiy analiz (Physicochemical analysis); trudy* konferentsii. Novosibirsk, Izd-vo Sib. otd. AN SSSR, 1963, 219-225

TOPIC TAGS: niobium, niobium purification, niobium oxalate, oxalic acid complex, tantalum, tantalum purification, tantalum oxalate

ABSTRACT: The interaction of oxalic acid with columbate and tantalate, which is important in the industrial refining of these metals, followed by conductometric titration with simultaneous potentiometric measurements. The results with Nb showed that the maximal interaction is obtained at a 1:1 ratio of KNbO_3 : $\text{H}_2\text{C}_2\text{O}_4$ of 1:1, while the maximal interaction with Ta is obtained at a 1:2 ratio of KTaO_3 : $\text{H}_2\text{C}_2\text{O}_4$. The interaction was studied from the point of view of the optimal interaction is obtained at a 1:1 ratio of KNbO_3 : $\text{H}_2\text{C}_2\text{O}_4$.

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L 9972-65

ACCESSION NR: AT4046217

analysis of the $\text{KNbO}_3\text{-H}_2\text{C}_2\text{O}_4$ system and of the separate components showed formation of a new compound at a 1:1 ratio with a pH of 4.3. This indicates that the following reaction occurs: $\text{KNbO}_3\text{-H}_2\text{C}_2\text{O}_4 = \text{K}(\text{NbO}_2\text{C}_2\text{O}_4) + \text{H}_2\text{O}$. Further studies on the solubility of barium columbate and tantalate and their interaction with oxalic acid, using radioactive Nb^{95} and Ta^{182} , showed that the maximal stability of the Nb-oxalic acid complex was at pH 0.0 - 2.0. Therefore, all measurements of the stability of the complex were made at pH 0.0 - 3.0. It was also found that the instability constant of the complex was 1.2. The results of the stability studies of the Nb-oxalic acid complex are given in Table 1. The results of the stability studies of the Ta-oxalic acid complex are given in Table 2. The results of the stability studies of the Nb and Ta both move towards the more stable complex. The results of the stability studies are given in the following equations.

ASSOCIATION: None

SUBMITTED: 10 Sep 63

ENCL: 00

SUB CODE: IC

NO REF SOV: 001

OTHER: 004

Card 2/2

PANKRATOVA, L.N.; VLASOV, L.G.; LAPITSKIY, A.V.

Complex formation of zirconium with diethylenetriaminopenta-
acetic acid and 1,2-diaminocyclohexanetetraacetic acid. Zhur.
neorg. khim. 9 no.6:1363-1368 Je '63 (MIRA 17:8)

SHAO PIN'-SI [Shao P'in-hsi]; LAPITSKIY, A.V.; VLASOV, L.G.

Solutions of potassium metaniobate in some organic acids.
Zhur. neorg. khim. 8 no.11:2614-2617 N '63. (MIRA 17:1)

1. Moskovskiy gosudarstvennyy universitet, khimicheskiy
fakul'tet.

BERDONOSOV, S.S.; LAPITSKIY, A.V.; BERDONOSOVA, D.G.; VLASOV, L.G.

X-ray diffraction study of niobium and tantalum pentabromides.
Zhur. neorg. khim. 8 no.11:2510-2512 N '63. (MIRA 17:1)

1. Moskovskiy gosudarstvennyy universitet, khimicheskiy
fakul'tet.

LAPITSKIY, A.V.; VLASOV, L.G.; BEZRUKOV, V.I.

Production of heteroniobates of some transition metals.
Dokl. AN SSSR 154 no.4:868-870 F '64. (MIRA 17:3)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
Predstavleno akademikom I.I. Chervyayevym.

LAPITSKIY, A.V.; BEZRUKOV, V.I.; VLASOV, L.G.

Interaction of potassium tantalate with salts of certain metals.
Vest. Mosk. un. Ser. 2: Khim. 18 no.5:32-33 S-0 '63. (MIRA 16:11)

1. Kafedra radiokhimii Moskovskogo universiteta.

ACCESSION NR: AP4012971

8/0020/64/154/004/0868/0870

AUTHORS: Lapitskiy, A.V.; Vlasov, L.G.; Bezrukov, V.I.

TITLE: Production of heteroniobates of certain transition metals

SOURCE: AN SSSR. Doklady*, v. 154, no. 4, 1964, 868-870

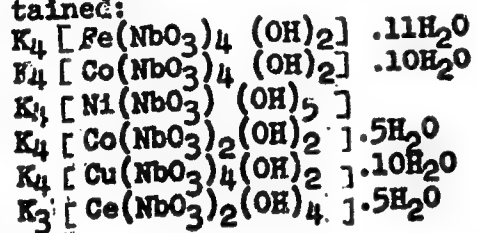
TOPIC TAGS: heteroniobate, potassium cerous niobate, potassium cuprous niobate, potassium ferrous niobate, potassium nickelous niobate, potassium cobaltous niobate, nephelometry, optical spectra, electrophoresis, molecular electroconductivity, anion mobility, anion diameter

ABSTRACT: The reactions of aqueous solutions of potassium metaniobate with transition metals salts (Cu(II), Pb (II), Cr (III) salts which are soluble in excess potassium niobate and KOH; Mn (II), Fe (II), Co, Ni and Ce (III) salts which are soluble in excess potassium metaniobate but insoluble in KOH) and the chemical and physical properties of the products were studied. Nephelometric observations indicated that precipitates were formed with equivalent amounts

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ACCESSION NR: AP4012971

of reactants: at 1:2 metal:niobium ratio for divalent and 1:3 ratio for trivalent metals. These precipitates dissolve with excess precipitant to form clear colored solutions (except for Pb, which is colorless). The formation of heteroniobates was further confirmed from their optical spectra and from electrophoresis studies in which the metal ions migrated to the anode indicating they became part of the negatively charged particle. The following compounds were obtained:



The maximum molecular electric conductivity of solutions of the last three compounds, and the mobility and the effective anion diameters were determined. Orig. art. has: 2 tables.

Card 2/3

ACCESSION NR: AP4012971

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V.
Lomonosova (Moscow State University)

SUBMITTED: 11Nov63

DATE ACQ: 26Feb64

ENCL: 00

SUB CODE: CH

NO REF SOV: 002

OTHER: 002

Card 3/3

PANKRATOVA, L.N.; VLASOV, L.G.; LAPITSKIY, A.V.

Certain characteristics of the behavior of zirconium 95 in
carrier-free solutions. Radiokhimiya 5 no.4:519-520 '63.
(MIRA 16:10)

(Zirconium isotopes)

BEZRUKOV, V.I.; LAPITSKIY, A.V.; VLASOV, L.G.

Reaction of potassium metaniobate with salts of certain metals. Vest.
Mosk. un. Ser.2: Khim. 18 no.4:65-66 J1-Ag '63. (MIRA 16:9)

1. Kafedra radiokhimii Moskovskogo universiteta.
(Potassium niobate) (Salts)

L 17091-63

EWB(q)/EWT(m)/EDS AFFTC/ESD-3 RM/JD

S/0189/63/000/004/0065/0066

ACCESSION NR: AP3004694

64
57

AUTHORS: Bezrukov, V. I.; Lapitskiy, A. V.; Vlasov, L. G.

TITLE: Reaction of potassium metaniobate with the salts of some metals

SOURCE: Moscow. Universitet. Vestnik. Seriya II. Khimiya, no. 4, 1963, 65-66

TOPIC TAGS: potassium metaniobate, sodium hydroxide, solubility, complex formation, salts of metals

ABSTRACT: The reaction between potassium metaniobate and the salts of heavy metals, as well as the solubility of the resulting product in excess of KNbO_3 , were studied by the nephelometric, potentiometric, and conductivity techniques. In view of the high pH of KNO_3 solutions, parallel tests were conducted with KOH . The concentration of KNbO_3 solutions were 0.1-0.001 normal, that of the heavy metal salts 0.05-0.0005 normal. In all tests the KNbO_3 solutions were added to those of the heavy metals. Salts of dibasic: Cu and Pb formed compounds which were soluble in excess KNbO_3 and KOH . The color of the KNbO_3 cupric compound differed from that of the original cupric salt, and the solution remained clear after a 32-time dilution. Ferric and ceric salts, as well as those of Mg and Cd, formed flocculent compounds insoluble in excess KNbO_3 or KOH . The salts

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L 17091-63

ACCESSION NR: AP3004694

of Zn, Al, and trivalent Cr produced compounds insoluble in excess KNbO_3 but soluble in excess KOH. The Zn and Al precipitates were white, and the one with Cr was green. The latter dissolved in excess KNbO_3 , but further addition of it resulted in reprecipitation. Ferrous, cerous, and manganous salts, as well as of Co^{2+} and Ni^{2+} , formed compounds that were soluble only in excess KNbO_3 . The solutions were all colored. The formation of complexes is suggested. Orig. art. has: 1 table.

ASSOCIATION: Moskovskiy universitet, Kafedra radiokhimii (Moscow University,
Department of Radiochemistry)

SUBMITTED: 15Feb62

DATE ACQ: 06Sep63

ENCL: 00

SUB CODE: CH

NO REF SOV: 002

OTHER: 002

Card 2/2

VLASOV, L. G.; SYCHEV, Yu. N.; LAPITSKIY, A. V.

Preparative partition of titanium and iron chlorides by gas
adsorption chromatography. Vest. Mosk. un. Ser. 2: Khim. 16
[i.e.17], no.6:55-57 N-D '62. (MIRA 16:1)

1. Kafedra radiokhimii Moskovskogo universiteta.

(Titanium chloride) (Iron chloride)
(Gas chromatography)

BERDONOSOV, S.S.; LAPITSKIY, A.V.; VLASOV, I.G.

Reduction of tantalum pentabromide. Vest. Mosk. un. Ser. 2:
Khim. 18 no.3:57-59 My-Je '63. (MIRA 16:6)

1. Kafedra radiokhimii Moskovskogo universiteta.
(Tantalum bromides)

BERDONOSOV, S.S.; BERDONOSOVA, D.G.; LAPITSKIY, A.V.; VLASOV, L.G.

X-ray diffraction examination of hafnium tetrabromide. Zhur.-
neorg.khim. 8 no.2:531-532 F '63. (MIRA 16:5)

1. Moskovskiy gosudarstvennyy universitet, kafedra radiokhimii.
(Hafnium bromide) (X-ray diffraction examination)

BERDONOSOV, S.S.; LAPITSKIY, A.V.; VLASOV, L.G.

Solubility of higher bromides of titanium, zirconium, and hafnium.
Vest.Mosk.un. Ser.2:Khim. 18 no.1:38-39 Ja-F '63. (MIRA 16:5)

1. Kafedra radiokhimii Moskovskogo universiteta.
(Titanium bromides) (Zirconium bromides) (Hafnium bromides)
(Solubility)

STRIZHKOV, B.V.; LAPITSKIY, A.V.; VLASOV, L.G.

Thermal decomposition of oxalic acid and bivalent metal
oxalates. Zhur.neorg.khim. 7 no..10:2352-2356 0 '62. (MIRA 15:10)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonsova i
Akusticheskiy institut AN SSSR.
(Oxalic acid) (Oxalates) (Thermochemistry)

VLASOV, L.G.; LAPITSKIY, A.V.; SALIMOV, M.A.; STRIZHKOV, B.V.

Structure of complex niobium oxalates. Zhur.^{neofg.khim.}
7 no.11:2534-2536 N '62. (MIRA 15:12)
(Niobium compounds) (Niobium oxalate)

STRIZHKOV, B.V.; LAPITSKIY, A.V.; SIMANOV, Yu.P.; VLASOV, L.G.

Complex titanium oxalates. Zhur.neorg.khim. 7 no.9:2181-2184
S '62. (MIRA 15:9)
(Titanium oxalate)

PANKRATOVA, L.N.; VLASOV, L.G.; LAPITSKIY, A.V.

Interaction of zirconium with some complexons. Zhur. neorg.
khim. 9 no.7:1763-1765 J1 '64. (MIRA 17:9)

1. Moskovskiy gosudarstvennyy universitet.

BERDOKOSOV, S.S.; LAPITSKIY, A.V.; VLASOV, L.G.

Mechanism and products of reduction of tantalum and niobium
pentabromides. Zhur.neorg.khim. 7 no.9:2173-2180 S '62.
(MIRA 15:9)

I. Moskovskiy gosudarstvennyy universitet.
(Tantalum bromide) (Niobium bromide)
(Reduction, Chemical)

BERDONOSOV, S.S.; LAPITSKIY, A.V.; VLASOV, L.G.; BERDONOSOVA, D.G.

X-ray study of zirconium tetrabromide. Zhur.neorg.khim. 7
no.6:1465-1466 Je '62. (MIRA 15:6)
(Zirconium bromides) (X rays—Crystallography)

VLASOV, L.G.; STRIZHKOV, B.V.; LAPITSKIY, A.V.; SALIMOV, M.A.

Infrared absorption spectra of titanium and niobium oxalates.
Dokl.AN SSSR 145 no.5:1055-1057 '62. (MIRA 15:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavleno akademikom I.I.Chernyayevym.
(Titanium oxalate--Spectra) (Niobium oxalate--Spectra)

S/189/62/000/006/003/006
D214/D307

AUTHORS: Vlasov, L.G., Sychev, Yu.N. and Lapitskiy, A.V.

TITLE: Preparative separation of titanium and iron chlorides by vapor phase chromatography

PERIODICAL: Moscow. Universitet. Vestnik. Seriya II. Khimiya, no. 6, 1962, 55-57

TEXT: Separation of the chlorides (95% TiCl_4 ; 5% FeCl_3) was conducted on a silica gel column at $380 \pm 1^\circ\text{C}$ using Cl_2 as the carrier gas. The Fe content of the emerging TiCl_4 , found radiometrically (^{59}Fe), was $< 5.10^{-8}\%$ (limit of detection). After 4-5 hrs, 10-15 g of Fe-free TiCl_4 were obtained. The adsorption of FeCl_3 on silica gel follows the Langmuir equation. The authors point out the value of gas chromatography both in analytical and in preparative inorganic chemistry. There is 1 figure.

ASSOCIATION: Kafedra radiokhimii (Department of Radiochemistry)

SUBMITTED: March 30, 1961
Gard 1/1

ZYULKOVSKIY, Yu.; VLASOV, L.G.; LAPITSKIY, A.V.

Self-diffusion coefficients of aqueous potassium metaniobate and products of its interaction with oxalic acid. Vest.Mosk.un.Ser.2: Khim. 17 no.2:42-46 Mr.-Ap '62. (MIRA 15:4)

1. Kafedra radiokhimii Moskovskogo universiteta.
(Potassium niobate) (Oxalic acid) (Diffusion)

LOMASHOV, Ivan Pavlovich, kand. geol.-minor. nauk; LOSEV, Boris
Ivanovich, prof., doktor tekhn. nauk; VLASOV, L.G., red.;
SIMKINA, G.S., tekhn. red.

[Germanium in coals]Germanii v iskopaemykh ugliakh. Moskva,
Izd-vo Akad. nauk SSSR, 1962. 257 p. (MIRA 15:11)
(Germanium)

VLASOV, Lev Grigor'yevich; TRIFONOV, Dmitriy Nikolayevich; FAYNBOYM,
~~I.B., red., RAKITIN, I.T., tekhn. red.~~

[Reburn elements]Rozhdennye zanovo. Moskva, Izd-vo "Znanie,"
1962. 46 p. (Novoe v zhizni, nauke, tekhnike. IX Seriya:
Fizika i khimiia, no.18) (MIRA 15:9)
(Chemical elements)

40101

S/020/62/145/005/011/020
B106/B144

AUTHORS: Vlasov, L. G., Strizhkov, B. V., Lapitskiy, A. V., and Salimov, M. A.

TITLE: Infrared absorption spectra of titanium and niobium oxalates

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 5, 1962, 1055-1057

TEXT: The complex nature of titanium and niobium oxalates has not hitherto been clearly explained. Therefore, the authors studied the infrared spectra of the following oxalates previously synthesized: $\text{Na}_3[\text{NbO}(\text{C}_2\text{O}_4)_3] \cdot 2\text{H}_2\text{O}$, $\text{K}_3[\text{NbO}(\text{C}_2\text{O}_4)_3] \cdot 2\text{H}_2\text{O}$, $(\text{NH}_4)_3[\text{NbO}(\text{C}_2\text{O}_4)_3] \cdot 2\text{H}_2\text{O}$, $\text{Ca}[\text{TiO}(\text{C}_2\text{O}_4)_2] \cdot 4\text{H}_2\text{O}$, $\text{Sr}[\text{TiO}(\text{C}_2\text{O}_4)_2] \cdot 5.5\text{H}_2\text{O}$, $\text{Ba}[\text{TiO}(\text{C}_2\text{O}_4)_2] \cdot 4\text{H}_2\text{O}$. The spectra of oxalates containing Na, K, NH_4 , Ca, Sr, or Ba were taken for comparison. Titanyl and alkaline-earth metal oxalates were investigated by the powder method, the other oxalates in the form of pastes. The spectra of the simple oxalates showed one sharp absorption maximum of 900 - 750 cm^{-1} range, and two such maxima in the 1600 - 1100 cm^{-1} range. The spectra of
Card 1/3

Infrared absorption spectra ...

S/020/62/145/005/011/020
B106/B144

oxalates containing Ti or Nb, however, showed two and three absorption maxima, respectively, in these two ranges. According to Zh. Lekont, (Infrakrasnoye izlucheniye (Infrared radiation), M., 1958), this proves that the titanium and niobium oxalates are complex compounds. The spectra further showed that the water contained in the oxalates was crystallization water. The absence of other absorption bands in titanyl oxalates suggests that both oxalate groups are coordinatively bound to Ti. There are some more bands in Nb derivatives. Studies of the thermal stability of these oxalates showed that two of the three oxalate groups are bound more loosely, and therefore are decomposed at lower temperatures, than the third. In Ti compounds both oxalate groups are decomposed at the same time. This leads to the conclusion that in complex niobium oxalates only one oxalate group is bound coordinatively to Nb. General formulas suggested for the Ti and Nb compounds investigated: $\text{Me}^{\text{II}} [\text{TiO}(\text{C}_2\text{O}_4)_2] \cdot n\text{H}_2\text{O}$, and $\text{Me}^{\text{I}} [\text{NbO}_2\text{C}_2\text{O}_4] \cdot 2\text{Me}^{\text{I}}\text{HC}_2\text{O}_4 \cdot m\text{H}_2\text{O}$. There are 2 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

Card 2/3

Infrared absorption spectra ...

S/020/62/145/005/011/020
B106/B144

PRESENTED: April 4, 1962, by I. I. Chernyayev, Academician

SUBMITTED: April 1, 1962

Card 3/3

LEFITSKIY, A.V.; VLADY, I.I.; ARTYCHOV, Ye.P.; IYELIOWSKIY, Ye.

Reaction between an aqueous solution of potassium metarobate
and oxalic acid. Dokl. Akad. Nauk SSSR 141 no.2:101-103 N '61.

(MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
Predstavleno akademikom I.I. Chernyayevym.
(Potassium metarobate)
(Oxalic acid)

VLASOV, L.G.; LAPITSKIY, A.V.

Physicochemical study of the system aqueous potassium metaniobate -
oxalic acid. Zhur.neorg.khim. 6 no.6:1418-1423 Je '61.

(MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova,
Kafedra radiokhimii.

(Potassium niobate) (Oxalic acid)

BC VLASOV L. I.

PROCESSING AND PROPERTIES INDEX

B-D-5

Physico-mechanical properties of Ukrainian
cotton of the 1950s. L. I. Vlasov (Moscow, Inst.
Chem. Tech. Ukrain. Acad. Sci., 1954, No. 7, 42-51).
Data are recorded in the 1954-1955 R. T. 21

ASB-ELA METALLURGICAL LITERATURE CLASSIFICATION

RELATIONS

RELATIONS

VLASOV L I

117 AND 118 INDEX

PROCESSES AND PROPERTIES INDEX

119 AND 120 INDEX

DEFORCEK dynamometer and its use. L. I. VLASOV (Mem. Inst. Chas. Tech. Ukrain. Acad. Sci., 1938, No. 9, 35-76).—A description and criticism of known apparatus. Its application in the testing of yarns and fibres is discussed. R. T.

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

VLASOV, L.I.

PROCESSES AND PROPERTIES INDEX

The use of cupranthanum staple fiber in the manufacture of coarse cloth. L. I. Vlasov and N. G. Glasatov. *Sheridan's Dolo 19*, No. 7, D-10(1940); *Chem. Zentr.* 1940, II, 2650.—The use of 5-4G% Cu-NH₂ staple fiber in the mixt. caused no difficulties in spinning, carding, weaving and finishing of coarse cloth. The output was thereby increased as compared to that without admixt. Organoleptically the product showed no looseness of texture and had a better appearance. M. G. Moore

ASB-16A METALLURGICAL LITERATURE CLASSIFICATION

RECORD NUMBER

RECORD DATE

RECORD TIME

RECORD NAME

RECORD ADDRESS

RECORD CITY

RECORD STATE

RECORD COUNTRY

RECORD ORGANIZATION

RECORD TITLE

RECORD AUTHOR

RECORD SUBJECT

RECORD ABSTRACT

RECORD FULLTEXT

RECORD OTHER INFO

VIASOV, L.N.; ISANINA, T.G.; LEVINA, R.G.; POLYANSKIY, V.A.

Effect of noise from motor-testing installations on the health of
the population. Gig. i san. 24 no.4:68-69 Ap '59. (MIRA 12:7)

(NOISE, effects,

indust. noise on health of population in surrounding
areas (Rus))

VLASOVA, L.N.

Functional changes in the nervous system following mastectomy due to cancer. Khirurgiia, Moskva no.3:62-70 Mar 1952. (OLML 22:1)

1. Candidate Medical Sciences. 2. Of the Institute of Surgery imeni A. V. Vishnevskiy (Director -- Prof. A. A. Vishnevskiy), Academy of Medical Sciences USSR.

VLASOV, L.P.

Approximately convex sets in Banach spaces. Dokl. AN SSSR 163 no.1:18-21
Jl '65. (MIRA 18:7)

1. Ural'skiy gosudarstvennyy universitet im. A.M.Gor'kogo. Submitted
December 31, 1964.

VLASOV, I.P.

Ginzburgov nets in Banach spaces. Dokl. AN SSSR 141 no.1:19-20 1961.
(MIA 14:11)

1. Ural'skiy gosudarstvennyy universitet im. A.M. Gor'kogo.
Predstavleno akademikom P.S. Novikovym.
(Aggregates)
(Banach spaces)

VLASOV, L.S.

Experimental investigation of the rigidity of claydite reinforced concrete beams subjected to lasting loading. Izv. AN Arm. SSR. Ser. tekhn. nauk 16 no.5:51-58 '63. (MIRA 16:12)

1. Gruzinskiy politekhnicheskii institut imeni Lenina.

CHEFURIN, Vitaliy Petrovich; VLASOV, L.V., red.

[Practice in introducing complex time control units (UKKV)]
Opyt vnedreniia ustanovok kompleksnogo kontrolya vremeni
(UKKV). Leningrad, 1964. 34 p. (MIRA 18:3)

VLASOV, Leonid Vasil'yevich; PETROVA, M.V.; red.

[Establishment of ultrashortwave radio communication systems in industrial enterprises] Organizatsiia ul'tra-korotkovolnovoi radiosviasi na promyshlennykh predpri-iatiiskh. Leningrad, 1964. 23 p. (MIRA 17:11)

BERDONOSOV, Sergey Serafimovich; VLASOV, Lev Grigor'yevich;
NESMEYANOV, An.N., doktor khim. nauk, prof., retsenzent;
KLYUCHNIKOV, N.G., kand. khim. nauk, dets., retsenzent;
METEL'SKAYA, G.S., red.

[Application of radioisotopes; a textbook for teachers]
Primenenie radioaktivnykh izotopov; posobie dlia uchite-
lei. Moskva, Prosveshchenie, 1964. 117 p.

(MIRA 18:9)

VIASOV, M., inzhener.

Device for the cold running-in of the IAAZ-204 engine without
removing it from the automobile. Avt.transp. 32 no.8:33 Ag '54.
(Motor trucks--Engines) (MLRA 7:11)

VIASOV, M., inzhener.

Eliminate shortcomings in the design of the IAAZ-204 engine. Avt.
transp. 34 no.9:25-26 S '56 (MLBA 9:11)
(Automobiles--Engines)

VLASOV, M., inzhener.

How to assure the operation of diesel engines at low temperatures.

Les. prom. 35 no.2:16-17 F '57.

(MLRA 10:4)

(Diesel engines--Cold weather operation)

VLASOV, M.

20072

USNR/Communications 4803.0300

Jan 1948

"Study and Perfect the Organization of Labor in Communication Enterprises," M. Vlasov, 1½ pp

"Vest Svyazi-Pochta" Vol VIII, No 1

Gives account of personnel study in Leningrad Telegraph Office to improve organization and efficiency of labor.

20072

VLASOV, M.

Develop more boldly combined trades. Sots.trud.no.1:79-80 Ja '56.
(Telecommunication) (Labor productivity) (MLRA 9:?)

VLASOV, M.

More about combined trades. Sets.trud. no.4:108-110 Ap '56.
(MLRA 9:11)

(Telecommunication) (Labor productivity)

107-57-1-47/60

AUTHOR: Sobeshchanskiy, L. and Vlasov, M.

TITLE: Semiconductor Converter for Supplying an A-8 Radio Receiver (Preobrazovatel' na poluprovodnikovyykh priborakh dlya priyemnika A-8)

PERIODICAL: Radio, 1957, Nr 1, p 46 and inside page, back cover (USSR)

ABSTRACT: The converter has been developed from the "Radio" journal specifications. Normally, the A-8 car radio is supplied by the VP-8 vibrapack, in which a VA-12 vibrator is used for DC-to-AC conversion and a 6Ts4P kenotron is used for rectification. Use of semiconductor devices in the vibrapack permits increasing its efficiency and reliability and decreasing its weight and dimensions 5-10 times because the transformation frequency is selected at 4-5 kc instead of 100 cps. A new Soviet converter is described in which two high-power P-4 transistors in a blocking-oscillator circuit and four DG-Ts25 semiconductor diodes in a bridge circuit are used. A circuit diagram, parts data, characteristics, and construction details of the semiconductor converter are supplied.

There are 5 figures in the article.

AVAILABLE: Library of Congress

Card 1/1

VLASOV, M.

"Technical establishment of work norms in communications" by
P. Faingluz. Reviewed by M. Vlasov. Sots.trud. no.1:152-154
Ja '57. (MLRA 10:4)
(Telecommunication--Production standards) (Faingluz, P.)
(Postal service--Production standards)

VLASOV, M.

In close cooperation with construction workers. Na stroi. Ros.
no.7:5-7 J1 '61. (MIRA 14:8)

1. Rukovoditel' Zapadno-Sibirskogo filiala Adademii stroitel'stva
i arkhitektury SSSR, chlen-korrespondent Akademii stroitel'stva
i arkhitektury SSSR.
(Siberia, Western--Building research)

VLASOV, M. A.

PA 19T82

USSR/Telegraph Equipment
Telegraph line units

Jul 1946

"Calculating and Planning Operating Efficiency of
Telegraph Apparatus," M. A. Vlasov, 2 pp

"Vestnik Svyazi - Elektro Svyaz'" No 7 (76)

Discusses the operating efficiency of various type of
telegraph apparatus and gives a table in which the
apparatus is broken down by type and function. There
is a different work coefficient for Bodo, during
transmission and during reception.

19T82

VLASOV, M. A.

USSR/ Miscellaneous - Incentive pay systems

Card 1/1 Pub. 133 - 17/23

Authors : Bakhgorskiy, N. I., Head of the Labor and Wage Department of the
Ministry of Communications; and Vlasov, M. A., Acting Head of the
Title : Department
On the incentive pay system and remuneration of workers keeping two
(or more) professional jobs

Periodical : Vest. slyazi 11, 27 - 28, Nov 1954

Abstract : Two directives issued by the Ministry of Communications of the USSR
dealing with incentive pay, and remuneration of communication special-
ists keeping two (or more) professional jobs, are discussed.

Institution:

Submitted:

VLASOV, M.A., ekonomist; TITOV, A.G., ekonomist

Questions and answers on applying the regulation concerning bonus wages to communication operational personnel. (Orders of the U.S.S.R. Minister of Communications no. 732 of August 30 and no. 960 of December 2, 1954.)
Vest. svyazi 15 no.7:25-26 J1 '55. (MLRA 8:8)
(Telecommunication) (Wages)

VLASOV, M.A., ekonomist; TITOV, A.G., ekonomist

Consultation on applying the Regulation on bonus wages for tele-
communication operational personnel. Vest.sviazi 15 no.9:31-32
S '55. (MLRA 8:12)

(Telecommunication) (Wages)

KRUPYANSKIY, P.Yu.; VLASOV, M.A., otvetstvennyy redaktor; SIDOROVA, T.S.,
redaktor; BERESLAVSKAYA, L.Sh., tekhnicheskiiy redaktor.

[Labor productivity in communications and ways of increasing it]
Proizvoditel'nost' truda v khoziaistve sviazi i puti ee povysheniia.
Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio, 1957. 67 p.
(MLRA 10:4)

(Labor productivity) (Telecommunication)

VLASOV, M.A.

Flare structure of drift instability. Pis'. v red. Zhur.
eksper. i teoret. fiz. 2 no. 7:297-300 0 '65.

(MIRA 18:12)

L 04107-67 EWT(1) IJP(c) AT

ACC NR: AP6032468

SOURCE CODE: UR/0056/66/051/003/0730/0739

AUTHOR: Vlasov, M. A.; Krivtsov, V. A.

ORG: none

TITLE: Effect of a radial electric field on the instability of inhomogeneous plasma

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 3, 1966, 730-739

TOPIC TAGS: radial electric field, inhomogeneous plasma, unstable plasma, plasma instability, plasma stabilization

ABSTRACT: The effect of a radial electric field E_r on the instability of an inhomogeneous plasma, produced by an arc discharge in an equipotential volume, was studied. It was shown that a change of the E_r magnitude results in a change of the critical magnetic fields, and that a change of the sign of the electric field is accompanied by an abrupt transition of the plasma from one unstable state to another. This transition occurs during a period which is of the order of magnitude

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L 04107-67

ACC NR: AP6032468

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inversely proportional to the increment γ of the instability. By changing the direction of an electric field having frequencies of the order of γ , it was possible to stabilize the plasma, to follow increment dependences on discharge parameters, and to estimate their absolute magnitudes, which were found to be of the order of drift frequencies. The authors thank E. I. Dobrokhoto and A. V. Zharinov for the useful discussions they had with them on the subject of their research. [Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 22Mar66/ ORIG REF: 006/ OTH REF: 003/

kh

Card 2/2

L 07916-67 EWT(1) LJP(c) AT
ACC NR AP6032466

SOURCE CODE: UR/0056/66/051/003/0715/0723

57
54
B

AUTHOR: Vlasov, M. A.

ORG: none

TITLE: Experimental investigation of the instability of an inhomogeneous plasma

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 3, 1966, 715-723

TOPIC TAGS: inhomogeneous plasma, arc discharge, critical magnetic field, plasma, unstable plasma, plasma instability

ABSTRACT: The results are presented of an investigation of plasma instability produced by a low-pressure arc discharge in magnetic fields up to 3000 oe at pressures from $4 \cdot 10^{-4}$ to 10^{-2} mm Hg. Near critical magnetic-field strengths, such an instability is accompanied by formation of torches which are ejected from the arc column and rotate steadily in the ion direction. With the variation of the magnetic field, the steady state of the rotation ceases, and for $H > 2000$ oe the plasma goes over to the turbulent state. The transverse diffusion coefficient D_{\perp} and the characteristic lifetime of disturbances in the turbulent state τ are

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L 07916-67
ACC NR: AP6032466

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estimated for these conditions. It is found that D_{\perp} is the same order as the Bohm diffusion coefficient, and γ is of the order of the drift frequency. On the basis of a qualitative model, an expression is obtained for the torch rotation frequency, which is in good agreement with the experimental results. The author thanks B. B. Kadomtsev, Ye. I. Dobrokhotov, and A. V. Zharinov for their valuable discussions. Orig. art. has: 14 figures and 8 formulas. [Based on author's abstract]

SUB CODE: 20/ SUBM DATE: 11Mar66/ ORIG REF: 006/

Card 2/2

vmb

VLASOV, M.A.

Instability of an inhomogeneous plasma. Pis'. v red. Zhur.
eksper. i teor.fiz. 2 no.6:274-278 S '65. (MIRA 18:12)

1. Submitted July 21, 1965.

L 9815-66 EWT(1)/EWA(m)-2

ACC NR: AP5027986

SOURCE CODE: UR/0386/65/002/007/0297/0300

AUTHOR: Vlasov, M. A.

ORG: none

TITLE: Torch structure of drift instability

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktskiyu. (Prilozheniye), v. 2, no. 7, 1965, 297-300

TOPIC TAGS: hydrogen plasma, plasma instability, arc discharge, plasma arc, plasma density

ABSTRACT: This is a continuation of earlier work (Pis'ma ZhETF v. 2, 274, 1965) where it was shown that drift instability occurs in an arc discharge of low pressure under certain conditions. This instability is manifest in the appearance of torches which erupt from the column of the arc in stationary fashion on the ion side at a frequency on the order of several kcs. The stationary character of the torch rotation has made possible in some cases a detailed study of the density and the potential topographies in the unstable mode. The measurements were carried out with a probe procedure in hydrogen at $p = 10^{-3}$ torr and $H = 730$ oe. The anode voltage and the arc current were 200 v and 100 ma. Under these conditions, the existence of two torches was observed near the critical field. An analysis of the results indicates that the torch is the result of the development of an initial density disturbance on the boundary of the arc column. Owing to the difference in the drift velocities of the ions and electrons on the boundary of such a disturbance, the charges may become

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L 9815-66

ACC NR: AP5027986

separated and this leads to an azimuthal electric field and to an outward drift of the plasma. Such a torch picture is well confirmed by the experimentally measured density and potential distributions in the torch, which demonstrate clearly the presence of polarization in the torch and its connection with the plasma inside the arc column. It is also deduced from the experimental results that the development of drift instability leads to the appearance of a relatively narrow torch, along which the plasma escapes transversely to the field. Outside the torch, the character of the diffusion remains classical, as indicated by the low values of the density and of $f = i_e/i_i$ (electron-ion current ratio) in these regions. The difference between the charged-particle currents in the ends and in the side walls of the chamber leads to the appearance of a current along the torch. It follows from the azimuthal variation of f that, on the average, an ion current I_i flows along the torch in an outward direction. The interaction between this current and the magnetic field leads to the appearance of a force which can be responsible for the torch rotation. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 21Jul65/ ORIG REF: 001

Card 2/2

L 2339-66 EWT(1)/EPA(s)-2/EPA(w)-2/EWA(m)-2

ACCESSION NR: AT5022106

UR/3136/64/000/780/0001/0043

AUTHORS: Vlasov, M. A.; Dobrokhotov, Ye. I.; Zharinov, A. V.

TITLE: Instability of electric discharge, in a magnetic field in the presence of a heated cathode, at low pressures

SOURCE: Moscow. Institut atomnoy energii. [Doklady], IAF-780, 1964. Neustoychivost' razryada s nakalennym katodom v magnitnom pole pri nizkikh davleniyakh, 1-43

TOPIC TAGS: plasma magnetic field interaction, plasma rotation, plasma beam instability, plasma research, plasma instability

ABSTRACT: The behavior of an electric discharge in a magnetic field in the presence of a heated cathode at low pressures was studied. The maximum magnetic field

strength was 2000 oersted and the gas pressure varied from 2×10^{-16} to 10^{-4} mm Hg. The gases used were A, H_2 and N_2 . The experimental installation is shown schematically in Fig. 1 on the Enclosure. It was found that: 1) the plasma beam had a negative charge with respect to the walls of the discharge chamber; 2) a stationary rotating magnetic "flare" formed in the plasma; the direction of rotation was toward the electron side; 3) the formation of the spinning flare was pressure dependent and was not observed to form for pressures higher than P^* (for A and N_2 , P^* = was 5.6

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L 2339-66

ACCESSION NR: AT5022106

and 5.8×10^{-5} mm Hg respectively); 4) the instability was caused by the drift of particles in the crossed magnetic and electric fields created as a result of polarization. For systems characterized by end-loss of particles such an instability was observed to be pressure dependent and arose only at pressures higher than P_{or} (for A, N_2 , and H_2 , P_{or} is 0.84, 0.74, and 10×10^{-5} mm Hg respectively). By assuming that the observed rotation of the discharge beam is due to the overall plasma rotation expressions for the electric field as a function of the pressure

$$U_z^* = U_{ez} \ln \left[\gamma \sqrt{\frac{U_a}{U_{ez}}} \frac{1}{n_0 \epsilon_1 v_{e1} \frac{L}{v_i} - 1} \right]$$

and for the frequency of flare spin

$$\omega (kHz) = C_1 \frac{E_a H}{C_a E_a A + \alpha H^2} \quad \text{were derived,}$$

where U_z^* is the retarding potential corresponding to P^* , U_a and U_{ez} the energy of primary and secondary electrons, n_0 the neutral gas density, ϵ_1 ionization cross section, v_{e1} and v_i velocity of primary electrons and ions, L length of discharge,

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f_D (kHz) is the frequency of flare spin, C_1 and C_2 are constants equal to 3×10^4 and 2×10^4 respectively, E field strength at boundary of beam, H the magnetic field strength, a the beam radius, and A the atomic weight of the ions. Both expressions are in good qualitative agreement with experimental results. The dependence of flare spin frequency on the retarding potential is shown graphically in Fig. 2 on the Enclosure. Orig. art. has: 1 table and 22 graphs.

ASSOCIATION: Institut atomnoy energii im. I. V. Kurchatova (Institute for Atomic Energy) 44.65

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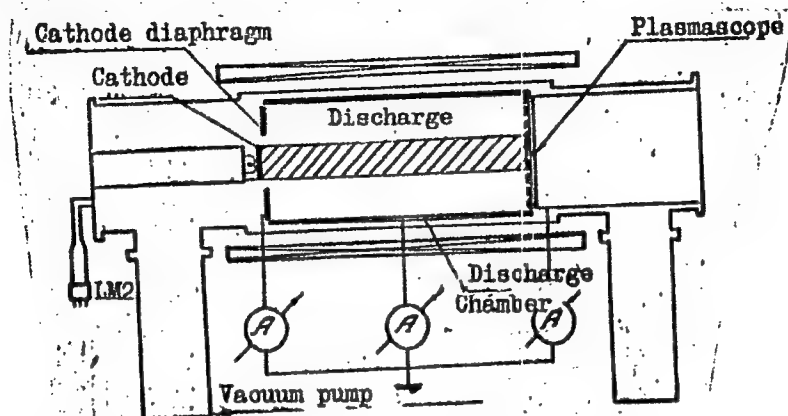


Fig. 1. Schematic of the experimental installation.

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Frequency of spin f_{sp} , relative units



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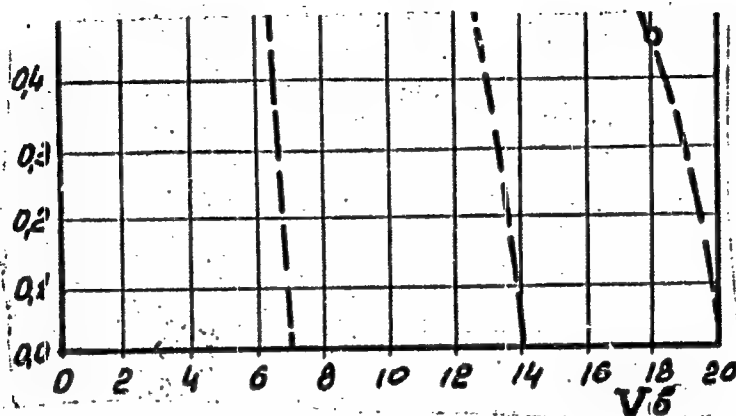


Fig. 2. Change in flare spin frequency during out-off of secondary electron emission. Argon. $U_a = 200$ v. I_a (anode current) 10 mA; $H = 575$ oersted; $L = 30$ cm, $O - P = 2 \times 10^{-5}$; $\phi - P = 4 \times 10^{-5}$; $\bullet - P = 6 \times 10^{-5}$ mm Hg

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L 4967-66 EWT(1)/ETC/EPF(n)-2/ENG(m)/EPA(w)-2 LSP(c) AT
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TOPIC TAGS: plasma instability, nonuniform plasma, plasma arc, discharge plasma, plasma magnetic field, arc discharge

ABSTRACT: The object of this study was a non-uniform plasma produced in a low pressure arc discharge with incandescent cathodes, since this form of instability has not been investigated in detail in the past. The plasma was produced in an equipotential volume of 76 mm diameter and 400 mm long, the cathode diameter being 10 mm. The working gas was for the most part hydrogen, and in some cases He, N₂, Ne and Ar. The magnetic field ranged from 100 to 3000 Oe. A stationary discharge (up to 600 ma, 100-400 v) was produced in the discharge, and the plasma parameters were measured either with Langmuir probes or with a plasmascop. The study disclosed the presence of two characteristic modes, one in which there are no plasma oscillations and the diffusion is classical, and one in which oscillations

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are observed and the diffusion exhibits both classical and anomalous features. Experiments were set up to determine the initial transverse gradients of the density, potential, and temperature, since these parameters determine the conditions under which plasma instability sets in. Major differences in the characteristics of the plasma, close to the discharge column and far from it are described. Study of the effect of the magnetic field and the plasma parameters on the oscillation frequency showed that the frequency remains practically unchanged under varying discharge conditions, ranging from 20 to 30 kcs for hydrogen. The phase velocity is 2.2×10^8 cm/sec and is of the same order of magnitude as the speed of sound in the plasma. An increase in the magnetic field gives rise to a rotating torch structure, which becomes unstable with increasing magnetic field. An even stronger magnetic field results in a fully developed drift-dissipative instability without eliminating the ion-sound instability. The author is grateful to Ye. I. Dobrokhotoy and A. V. Zharinov for useful discussions. Orig. art. has: 3 figures. 47,54 [02]

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Card 2/2

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